VER. 6/99

SAMPLING SCHEME and LIST of REQUIRED TESTING as OUTLINED in the 1992 EPA REGION 2 REGIONAL IMPLEMENTATION MANUAL on Dredged Material Proposed for Ocean Disposal and the 1991 GREEN BOOK

Project San Juan Harbor Federal Navigation Project (2005)

Applicant No. USACE

Address

Waterway San Juan Harbor

Proposed Volume: 735,000 cubic yards (based on 8/2004 bathymetric survey)

Project Depth in feet: various

(**NOTE:** The applicant is required to collect cores from each sampling location to project depth plus 2 ft)

A preapplication meeting ___ was held on _____ at District Offices in San Juan

__X__ was not held at the District Offices in San Juan.

The applicant has indicated that testing will be performed by the following laboratories:

Biological PPB (Subcontractor) Analytical EPB (Subcontractor) Dioxin: NA

The sampling scheme and required testing described on the reverse side was approved for the proposed project area based upon the information contained in the attached map.

Sample dredging sites are indicated on attached map.

The proposed dredging area is subdivided into TWO reaches for sampling and testing purposes.

Reach 1: 8 locations (#A1–A8) Reach 2: 6 locations (B1-B6)

- The District/Region reserves the right to require additional sampling and testing at any time.

COMMENTS:

1. If there is any evidence of stratification in core samples, contact Region prior to compositing.
2. Additional cores may have to be taken from each station in order to ensure adequate volumes of sediment to meet testing requirements. If so, **the same number of cores must be taken and composited from each location.**
3. Core locations may have to be moved if shoaling patterns have changed. If so, contact Region during sampling to confirm new locations.
4. A work and quality assurance project plan (WQAPP) must be submitted to, reviewed and approved by the District and the Region prior to commencement of any sampling or testing associated with this application.

ADDITIONAL REQUIREMENTS:

* If you have any questions regarding sampling, test protocols, test species, qa/qc, etc. please contact the Dredged Material Management Team of USEPA Region 2 at (212)-264-3797 or extension of person completing this form.

PREPARED BY: MARK REISS DATE: 5 May 2005 PHONE: 212-637-3799

SEE REVERSE SIDE FOR SAMPLING AND TESTING REQUIREMENTS

APPLICANT: USACE – San Juan Federal Nav Project

Any Box Checked Off Indicates an Analysis or Assay that is Required for a Given Project.
Archiving requires saving a sample for possible analysis at a later time pending further instruction.

X = Per Homogenized Sediment Core + Reference (Composited Grabs) + Control
C = Per Bioassay Sediment Composite
A = Archive
W = Site Water and Elutriate
T = Per Tissue Replicate (Ref, Test, Pre-test, A= Archive Ctl and any remaining tissue from Ref, Test, Pre-test)

1. SEDIMENT PHYSICAL ANALYSIS (If stratification is observed, each stratum within a core must be analyzed separately)
   a. X **Grain Size Analysis** (% sand, % silt, & % clay)
   b. X **% Moisture**
   c. C **Specific Gravity**
   d. C **Bulk Density**
   e. C **Plastic and Liquid limits (Atterberg limits)**

2. SEDIMENT CHEMICAL ANALYSIS

REQUIRED

   a. X **% Total Organic Carbon**

CASE BY CASE BASIS

   a. C A **Metals** (Ag, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn)
   b. C A **PAHs (LMWs:** acenapthene, acenaphthylene, anthracene, fluorene, naphthalene, phenanthrene)
   c. C A **PAHs (HMWs: b**enzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthrene, indeno(1,2,3-c,d)pyrene, pyrene)
   d. C A **Semi-volatiles** (1,4 dichlorobenzene)
   e. C A **Pesticides** (aldrin, alpha chlordane, trans nonachlor, dieldrin, p,p' and o,p' DDT/DDD/DDE, endosulfans(I,II, and sulfate), heptaclor, heptachlor epoxide)
   f. C A **PCBs** (#8,18,28,44,49,52,66,87,101,105,118,128,138,153,170,180,183,184,187,195,206,209)
   g. ___ **PCB coplanar** (#77,126,156,169)
   h. ___ **Dioxins/Furans** (2,3,7,8 - substituted isomers, n=17)
   i. ___ **Other:**

3. CHEMICAL ANALYSIS OF SITE WATER AND ELUTRIATE

REQUIRED

   a. W **Metals** (Ag, Cd, Cr, Cu, Hg, Ni, Pb, Zn)
   b. W **PCBs** (#8,18,28,44,49,52,66,87,101,105,118,128,138,153,170,180,183,184,187,195,206,209)
   c. W **Pesticides** (aldrin, alpha chlordane, trans nonachlor, dieldrin, p,p' and o,p' DDT/DDD/DDE, endosulfans(I,II, and sulfate), heptachlor, heptachlor epoxide)
   d. ___ **Other:**

CASE BY CASE BASIS

   a. ___ **PAHs** (_all 16, _ LMW, _ HMW, _ as specified)
   b. ___ **2,3,7,8-TCDD**
   c. ___ **2,3,7,8-TCDF**
   d. ___ **PCB coplanar** (#77,126,156,169)
   e. ___ **Other:**

4. BIOASSAYS (species listed in guidance manual)
   a. C **Water Column Acute Toxicity.** (bivalve larvae, M. bahia, Menidia sp.)
   b. C **10-Day Benthic Acute Toxicity.** (A. abdita, R. abronius, E. estuarius, or L. plumulosus)
   c. C **10-Day Benthic Acute Toxicity.** (M. bahia)
   d. C **28-Day Bioaccumulation** (N. virens, and Macoma secta or M. nasuta)

5. 28-DAY WHOLE-SEDIMENT BIOACCUMULATION TISSUE ANALYSIS

REQUIRED (assuming confirmed presence in sediment)

   a. T A **Metals** (Ag, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn)
   b. T A **Pesticides** (aldrin, alpha chlordane, trans nonachlor, dieldrin,p,p' and o,p' DDT/DDD/DDE, endosulfans(I,II, and sulfate), heptachlor, heptachlor epoxide)
   c. T A **PCBs** (#8,18,28,44,49,52,66,87,101,105,118,128,138,153,170,180,183,184,187,195,206,209
   d. T A **Semi-volatiles** (1,4 dichlorobenzene)
   e. T A **PAHs (LMWs:** acenapthene, acenaphthylene, anthracene, fluorene, naphthalene, phenanthrene)
   f. T A **PAHs (HMWs:** benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthrene, indeno(1,2,3-c,d)pyrene, pyrene)

CASE BY CASE BASIS

   a. ___ **Dioxins/Furans** (2,3,7,8 - substituted isomers, n=17)
   b. ___ **PCB coplanar** (#77,126,156,169)
   c. ___ **Other:**

REFER TO COMMENT SECTION ON REVERSE SIDE FOR ADDITIONAL INFORMATION